

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions,  
and listings, of claims in the application:

LISTING OF CLAIMS:

1-18. (Canceled)

19. (Currently Amended) Catheter An infusion system comprising a catheter device (2) for transcutaneous or subcutaneous administration of substances to a patient, comprising:

an outer catheter (4) provided with one outer catheter lumen (6) with a distal outer catheter outflow opening (8) and an inner catheter (10) provided with at least one inner catheter lumen (12) with at least one distal inner catheter outflow opening (14), said inner catheter is adapted to be detachably arranged in said outer catheter lumen, said inner catheter outflow opening is located proximally said outer catheter outflow opening when the catheter device is adapted to be used for administration of liquid substances to a patient,

wherein the infusion system further comprises an external pump device (16) including a pumping means (18), reservoir means (20) and a control means (22), and that said control means controls the pumping means such that said substance is administered as a pulsed flow sequence of liquid substance

comprising a predetermined number of liquid pulses, wherein each liquid pulse is a predetermined volume of the substance, and that a liquid pulse of the liquid substance through the inner catheter lumen is followed in time sequence by a liquid pulse of a flushing liquid applied through the outer catheter lumen, in order to make the liquid substance reach a target area of administration characterized in that when the catheter device is adapted to be used for administration of substances to a patient, said inner catheter outflow opening is located proximally said outer catheter outflow opening.

20. (Currently Amended) Catheter device The infusion system according to claim 19, characterized in that wherein said inner catheter is coaxially arranged with regard to said outer catheter.

21. (Currently Amended) Catheter device The infusion system according to claim 19, characterized in that wherein at least one substance, adapted to be administered, is active, such as and is a hormone, e.g. insulin, a peptide, an anti-thrombolytic agent or any other pharmaceutical preparation for therapeutic or diagnostic use.

22. (Currently Amended) Catheter device The infusion system according to claim 21, characterized in that

wherein said active substance is administered by said inner catheter.

23. (Canceled)

24. (Currently Amended) ~~Catheter device~~ The infusion system according to claim 19, ~~characterized in that~~ wherein outer and inner catheters comprise at their respective proximal ends first connection connector means (24) for connection to an external pump device having one or more reservoirs for substances and flushing liquids.

25. (Currently Amended) ~~Catheter device~~ The infusion system according to claim 19, ~~characterized in that~~ wherein said device is provided with a second connector means (26) making it possible to detach said inner catheter and replace it.

26. (Currently Amended) ~~Catheter device~~ The infusion system according to claim 25, ~~characterized in that~~ wherein said second connector means is partly integrated in a Y-connection.

27. (Currently Amended) ~~Catheter device~~ The infusion system according to claim 26, ~~characterized in that~~

wherein said second connector means includes a first fastening means (28) at the proximal end of said inner catheter adapted to co-operate with a second fastening means (30) integrated with an opening in the outer catheter wall such that when said first and second fastening means are attached to each other the catheter is in a substance administration state.

28. (Currently Amended) ~~Catheter device~~ The infusion system according to claim 27, ~~characterized in that~~ wherein during a replacement procedure the first fastening means is detached from said second fastening means and the inner catheter is withdrawn out through said opening in the outer catheter wall and a new inner catheter may be inserted through said opening.

29. (Currently Amended) ~~Catheter device~~ The infusion system according to claim 28, ~~characterized in that~~ wherein the positions of said first and second fastening means ensure that a predetermined volume is obtained in the distal end of the outer catheter.

30. (Canceled)

31. (Currently Amended) ~~Catheter device~~ The infusion system according to claim 19, ~~characterized in that~~ wherein the inner catheter comprises two lumen.

32. (Canceled)

33. (Currently Amended) ~~Catheter device~~ The infusion system according to claim 19, ~~characterized in that~~ wherein all surfaces in contact with the active substance in the catheter device are made of or covered by tetrafluoro polyethylene.

34. (Currently Amended) ~~Catheter device~~ The infusion system according to claim 19, ~~characterized in that~~ wherein the volume of [[a]] the liquid pulse of the substance is approximately the same as [[the]] a volume defined in said outer catheter lumen between the inner catheter outflow opening and the outer catheter outflow opening.

35. (Canceled)

36. (Canceled)

37. (Canceled)